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Case Report

Hepatocellular carcinoma in situs inversus totalis-a case report

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Abstrak

Pria berumur 43 tahun datang dengan rasa tidak nyaman dan nyeri perut bagian atas (epigastrium) lebih ke sisi kiri disertai demam hilang timbul, serta rasa letih dan nafsu makan berkurang yang dirasakan empat bulan terakhir. Dari pemeriksaan fisik didapatkan massa di hipokondrium kiri yang meluas ke epigastrium dengan distensi ringan abdomen. Pada pemeriksaan radiologis terlihat dekstrokardia pada foto Rontgen dada pasterior anterior *(PA), CT-thoraks dan abdomen memperlihatkan inversus totalis dengan SOL (*space occupying lesion*) multipel di lobus hati kanan dengan ukuran terbesar 8x6 cm^2 di segmen 4. FNAC dipandu USG terhadap massa memperlihatkan karsinoma hepatoselular. Karena itu, pasien karsinoma hepatoselular pada situs inversus totalis dan secara klinis berada pada stadium dengan T3aN0M0. Pasien kemudian diberikan sorafenib 400 mg per oral dua kali sehari dengan saran untuk datang untuk pemeriksaan setiap 4 minggu.*

Abstract

A 43-year old male presented with persistent discomfort and pain upper abdomen (epigastrium) more on left side associated with fever on and off, along with fatigue and loss of appetite for the last four months. Physical examination revealed mass on left hypochondrium extending to epigastrium with mild distension of the abdomen. Imaging studies of the patient showed dextrocardia on chest x-ray postero-anterior (PA) view, thoracic and abdominal CT scan showed situs inversus totalis with multiple SOL (space occupying lesion) in right lobe of liver with largest measuring 8x6 cm^2 in the 4th segment. USG-guided FNAC of the mass showed features of hepatocellular carcinoma. Thereupon, hepatocellular carcinoma in situs inversus totalis was diagosed to this patient and was clinically staged as T3aN0M0. He was given sorafenib 400 mg orally twice daily with an advice to come for regular assessment every 4 week.

Keywords: hepatocellular carcinoma, situs inversus totalis, case report

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Hepatocellular carcinoma (HCC) is the sixth-most common malignancy worldwide and the third-most common cancer mortality. The global incidence accounts for approximately 626,000 new cases every year, with a male to female ratio of about 2.4:1.[1] Situs inversus totalis (SIT) is a rare congenital condition, in which there is a mirror-image transposition of both the abdominal and thoracic viscera. The incidence is estimated 1:5,000 to 1:10,000.[2]

The etiology of transposition of viscera is obscure and the condition does not influence normal health or life expectancy, but it has important surgical implications.[3] There is a few reported cases of HCC developing in people with SIT. However, the correlation of both has not been studied so far. This case report showed a patient with HCC in SIT.

CASE REPORT

A 43-year old male presented with persistent discomfort upper abdomen (epigastrium) associated with pain left upper abdomen and fever on and off, along with fatigue and loss of appetite for the last four months. He also had history of recurrent upper and lower respiratory tract infections. There was no significant past history suggestive of hypertension coronary artery disease, hepatic, and renal diseases.

The patient a smoker (8 - 10 sticks/day) for the last 25 - 30 years, he was also an alcoholic for about 20 years but stopped 4 years back, he chewed areca nut and tobacco occasionally. Physical examination revealed a firm mass 4 cm below left hypochondrium extending to epigastrium with mild distension of the abdomen.

The laboratory investigations showed: alkaline phosphatase 187 IU/L, SGOT 172 IU/L, SGPT 117 IU/L, bilirubin (total) 1.7 mg/dL, albumin 3 g/dL, leucocyte 4,900/mm^3, hemoglobin 14.2 g/dL, platelet 224,000/mm^3, and urea, creatinine and electrolytes were within normal range. In addition, alpha-fetoprotein had a value of 140.8 ng/mL and viral profile (HBsAg, HCV, HIV) were non-reactive. The chest x-ray showed dextrocardia (Figure 1). In thoracic computed tomography (CT), scan dextrocardia and scars of previous pulmonary infections were observed at the right upper lobe of the lung. whole abdominal CT scan showed hepatosplenomegaly with situs inversus totalis with multiple SOL (space occupying lesion) in right lobe of liver with the largest size of 8x6 cm^2 in the 4th segment (Figure 2). USG-guided FNAC (fine needle aspiration cytology) of the mass showed hepatocellular carcinoma (Figure 3).

From the above clinical data, hepatocellular carcinoma was diagnosed in situs inversus totalis with a clinical staging of T3aN0M0. Thereupon, patient was put on sorafenib 400 mg orally twice daily with an advice to come for regular assessment every 4 week. There was

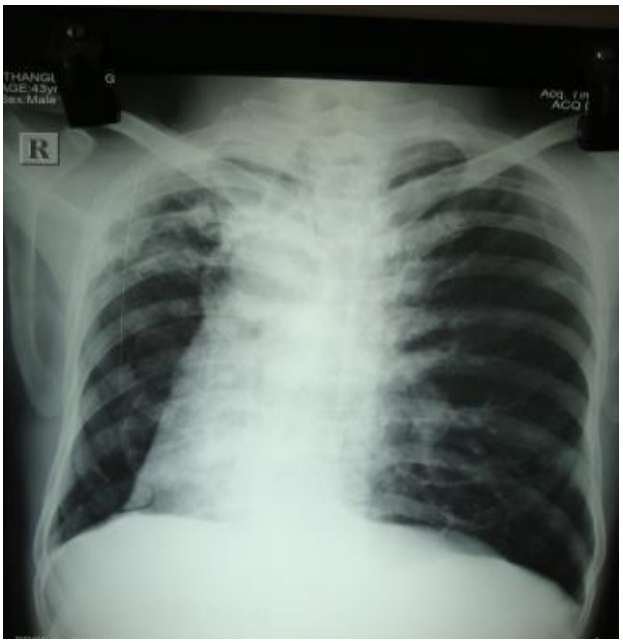

Figure 1. Chest x-ray PA view showing dextrocardia

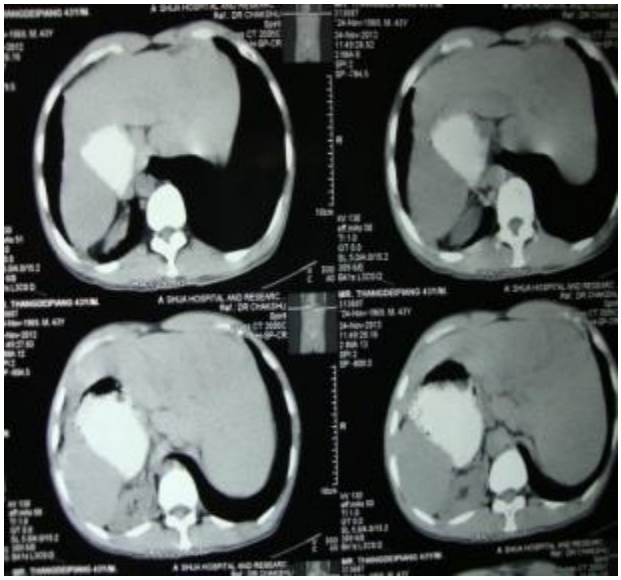

Figure 2. CT image showing situs inversus totalis

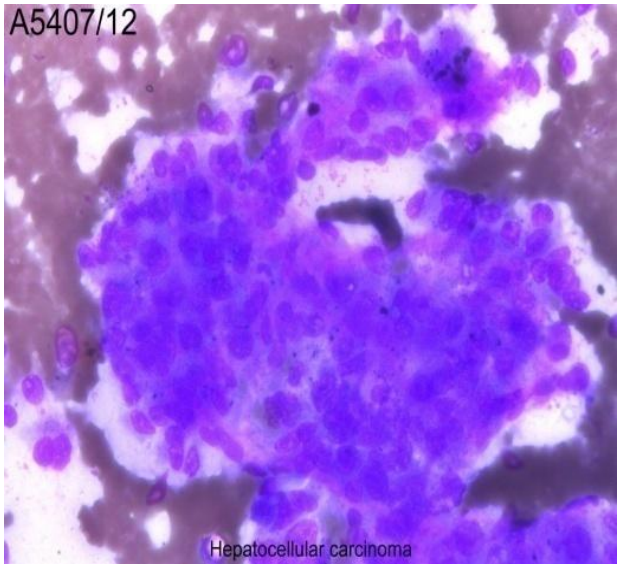

Figure 3. USG guided FNAC showing HCC (MMG – 40X)

improvement of the symptoms when he came for the second follow-up after 8 weeks of treatment, although the imaging studies done did not show any significant decrease in the size of liver lesion.

DISCUSSION

In this case report, we presented a patient with situs inversus totalis and HCC. Situs inversus is a term to describe left-to-right transposition of the normally asymmetrical organs of the body. Transposition of both the thoracic and abdominal organs is known as situs inversus totalis (SIT). Situs inversus is generally an autosomal recessive genetic condition located on the long arm of chromosome-12, although it can be X-linked or found in identical "mirror"

twins.[4,5] Hepatocellular carcinoma (HCC) is one of the most common internal malignancy's worldwide, especially in the Eastern Asia, with poor prognosis and the first leading cause of deaths in the southeast region of China.[6] This patient had risk factors of male, smoking and alcoholic. Risk of liver cancer is higher in males than females.[1] Tobacco smoking and alcohol consumption also play a substantial role in incidence of liver cancer. It has been found that smokers have an increased risk of 51-56% for HCC.[7,8] Alcohol consumption of more than 80 g/day (10 UK units/day) over many years increases risk of HCC by about five-fold.[9]

In about 25% of situs inversus, primary ciliary dyskinesia (PCD) often leads to infection of paranasal sinuses and lungs, also known as Kartagener's syndrome.[10] This might be the explanation for this patient who gives history of recurrent upper and lower respiratory tract infection with evidence of previous pulmonary infection scar at the right upper lobe of lung as seen in chest x-ray and thoracic CT scan.

Situs inversus totalis usually does not cause any significant morbidity to an individual harbouring it.[11] However, its timely diagnosis is crucial for interpretation of future symptoms and results of diagnostic procedures.[12] An antedated diagnosis of this disorder will form a baseline reference for future procedure and will be invaluable in preventing an unintentional operative mishap. Rarely, situs inversus can run in families, but most often it is an isolated and accidental event occurring in an individual for the first time in the family. The cause of SIT is unknown. There are few reported cases of HCC developing in SIT, however, the correlation of this two has not been studied.

Ultrasound is the preferred imaging method for surveillance, which has a sensitivity of 60 - 80% and specificity of over 90%.[13] Further investigation is also needed to determine the suitable treatment modality. CT-scan of abdomen and thorax will reveal local and distant spread.

The normal range for AFP is 10-20 ng/mL. The diagnostic sensitivity of AFP for detecting HCC is 41-65%.[14] A level of > 400 ng/mL may be regarded as diagnostic for HCC. However, in some cases it may be less or undetectable.

Radiation therapy (RT) has played a limited role in the management of patients with unresectable liver cancer, primarily because of the low tolerance of the whole liver to RT and challenges associated with delivering highly conformal, high-dose RT to liver tumors while sparing dose to the uninvolved liver. There is a > 5% risk of radiation-induced liver injury after uniform whole-liver RT of 28 gray (Gy) to 35 Gy delivered over 3 weeks,[15,16] doses that are far less than those required to eradicate tumor. Metastases to lymph node,[17] bone,[18] brain,[19] and other soft tissue from HCC have been treated with palliative RT with good symptom control. Reduction of mass effects and pain from bulky disease, cessation of bleeding, and prevention of tumor rupture are other palliative indications for RT. Other methods of delivering radiation to HCC include hepatic arterial delivery of radio-labeled radioactive substances like Yttrium-90, iodine-131 and interstitial brachytherapy. Modern technology like IGRT (image-guided radiotherapy), and IMRT (Intensity-modulated radiotherapy) allows greater confidence to deliver high doses that conforms tightly to the tumor.

Careful patient selection is crucial prior to initiation of treatment. Sorafenib should be the first-line treatment in patients with advanced and inoperable HCC.[20] Our case being unresectable, is a suitable case to start with sorafenib before other modalities is considered.

In conclusion, SIT is a rare congenital condition, in which there is a mirror-image transposition of both the abdominal and thoracic viscera. Generally, this rare anomaly is diagnosed incidentally during thoracic and abdominal imaging. The cause of SIT is unknown. Development of HCC in SIT is possible though rare, such condition should be kept in mind while discussing left hypochondrial mass.

Conflict of interest

The authors declare that this study is free of conflict of interest.

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